

Serial No. 09/087,248
Atty. Doc. No. 2734,442-02

IN THE CLAIMS:

Claims 1 - 51 (canceled).

52. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about $1500 \text{ cm}^3/\text{m}^2$;

a transfer cylinder, wherein said nascent web is located between said foraminous endless fabric and said transfer cylinder; and

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said transfer cylinder thereby forming a nip between said foraminous endless fabric and said transfer cylinder, wherein no pervious member is interposed between said transfer cylinder and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m^2 at an overall line load of less than about 240 kN/m , and wherein said pressing unit does not include suction pressure rolls.

53. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about $1500 \text{ cm}^3/\text{m}^2$;

a transfer cylinder, wherein said nascent web is located between said foraminous endless fabric and said transfer cylinder; and

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said transfer cylinder thereby forming a nip between said foraminous endless fabric and said transfer cylinder, wherein no pervious member is interposed between said transfer cylinder and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m^2 , and wherein said pressing unit does not include suction pressure rolls.

54. (previously presented) The apparatus of claims 52 or 53, wherein said pressing unit is additionally configured to impose an asymmetrical pressure distribution upon said nascent web, said asymmetrical pressure distribution being skewed such that the pressure declines from a peak pressure to a value of 20% of said peak pressure over a nip length which is no more than about half of the nip length over which it rose to said peak pressure from 20% of said peak pressure.

55. (previously presented) The apparatus of claims 52 or 53, wherein said pressing unit comprises at least one hydraulic engagement member.

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

56. (previously presented) The apparatus of claim 55, wherein said at least one hydraulic engagement member has a length of less than about 3 inches.

57. (previously presented) The apparatus of claim 56, wherein said at least one hydraulic engagement member has a length of less than about 2 inches.

58. (previously presented) The apparatus of claims 52 or 53, wherein said foraminous endless fabric is a press felt or an impression blanket.

59. (previously presented) The apparatus of claims 52 or 53, wherein the means for forming a nascent web is selected from a crescent former, a twin wire former, a suction breast roll former, or a fourdrinier former.

60. (previously presented) The apparatus of claims 52 or 53, wherein said pressing unit is configured to have a line load of less than about 175 kN/m.

61. (previously presented) The apparatus of claims 52 or 53, wherein said pressing unit is configured to have a line load of less than about 100 kN/m.

62. (previously presented) The apparatus of claims 52 or 53, wherein said nip is at least about 2500 kN/m².

63. (previously presented) The apparatus of claims 52 or 53, wherein said nip is at least about 3000 kN/m².

64. (previously presented) The apparatus of claims 52 or 53, wherein said nip is at least about 3150 kN/m².

65. (previously presented) The apparatus of claims 52 or 53, further comprising a creping blade for removing said absorbent paper sheet from said transfer cylinder.

66. (previously presented) The apparatus of claims 52 or 53, wherein said pressing unit is configured to disengage said web from said foraminous endless fabric

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

such that rewet of said nascent web by said foraminous endless fabric is less than about 50% of the rewet predicted by the Sweet equations based upon the properties of said foraminous endless fabric and said nascent web.

67. (previously presented) The apparatus of claim 66, wherein said pressing unit is configured to disengage said web from said foraminous endless fabric at a nip length of less than about one inch from the point the nip pressure reaches zero.

68. (previously presented) The apparatus of claim 66, wherein said pressing unit is configured to both disengage said web from said foraminous endless fabric and disengage said foraminous endless fabric from said pressing blanket at a nip length of less than about one inch from the point the nip pressure reaches zero.

69. (previously presented) The apparatus of claims 52 and 53, wherein said transfer cylinder is heated.

70. (previously presented) The apparatus of claims 52 and 53, wherein said transfer cylinder is selected from a granite roll, a cold steel roll, a gas fired heater, or a Yankee drying cylinder.

71. (previously presented) The apparatus of claim 69, wherein said transfer cylinder is heated by an induction heater.

72. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about $1500 \text{ cm}^3/\text{m}^2$;

a backing roll, wherein said nascent web is located between said foraminous endless fabric and said backing roll; and

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said ~~transfer cylinder~~ backing roll thereby forming a nip between said foraminous endless fabric and said ~~transfer cylinder~~ backing roll, wherein no pervious member is interposed between said ~~transfer cylinder~~ backing roll and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m^2 at an overall line load of less than about 240 kN/m , and wherein said pressing unit does not include suction pressure rolls.

73. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about $1500 \text{ cm}^3/\text{m}^2$;

a backing roll, wherein said nascent web is located between said foraminous endless fabric and said backing roll; and

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said ~~transfer cylinder~~ backing roll thereby forming a nip between said foraminous endless fabric and said ~~transfer cylinder~~ backing roll, wherein no pervious member is interposed between said ~~transfer cylinder~~ backing roll and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m², and wherein said pressing unit does not include suction pressure rolls.

74. (previously presented) The apparatus of claims 72 or 73, wherein said pressing unit is additionally configured to impose an asymmetrical pressure distribution upon said nascent web, said asymmetrical pressure distribution being skewed such that the pressure declines from a peak pressure to a value of 20% of said peak pressure over a nip length which is no more than about half of the nip length over which it rose to said peak pressure from 20% of said peak pressure.

75. (previously presented) The apparatus of claims 72 or 73, wherein said pressing unit comprises at least one hydraulic engagement member.

76. (previously presented) The apparatus of claim 75, wherein said at least one hydraulic engagement member has a length of less than about 3 inches.

77. (previously presented) The apparatus of claim 76, wherein said at least one hydraulic engagement member has a length of less than about 2 inches.

78. (previously presented) The apparatus of claims 72 or 73, wherein said foraminous endless fabric is a press felt or an impression blanket.

Serial No. 09/987,248
Atty. Dec. No. 2734.442-02

79. (previously presented) The apparatus of claims 72 or 73, wherein the means for forming a nascent web is selected from a crescent former, a twin wire former, a suction breast roll former, or a fourdrinier former.

80. (previously presented) The apparatus of claims 72 or 73, wherein said backing roll is heated.

81. (previously presented) The apparatus of claim 80, wherein said backing roll is heated by steam.

82. (previously presented) The apparatus of claim 80, wherein said backing roll is heated by induction heating.

83. (previously presented) The apparatus of claims 72 or 73, wherein said pressing unit is configured to have a line load of less than about 175 kN/m.

84. (previously presented) The apparatus of claims 72 or 73, wherein said pressing unit is configured to have a line load of less than about 100 kN/m.

85. (previously presented) The apparatus of claims 72 or 73, wherein the pressure at said nip is at least about 2500 kN/m².

86. (previously presented) The apparatus of claims 72 or 73, wherein the pressure at said nip is at least about 3000 kN/m².

87. (previously presented) The apparatus of claims 72 or 73, wherein the pressure at said nip is at least about 3150 kN/m².

88. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about $1500 \text{ cm}^3/\text{m}^2$;

a transfer cylinder, wherein said nascent web is located between said foraminous endless fabric and said transfer cylinder; and

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said transfer cylinder thereby forming a nip between said foraminous endless fabric and said transfer cylinder, wherein no pervious member is interposed between said transfer cylinder and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m^2 at an overall line load of less than about 240 kN/m , and wherein said pressing unit comprises at least one hydraulic engagement member.

89. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about $1500 \text{ cm}^3/\text{m}^2$;

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

a transfer cylinder, wherein said nascent web is located between said foraminous endless fabric and said transfer cylinder; and

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said transfer cylinder thereby forming a nip between said foraminous endless fabric and said transfer cylinder, wherein no pervious member is interposed between said transfer cylinder and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m², and wherein said pressing unit comprises at least one hydraulic engagement member.

90. (previously presented) The apparatus of claims 88 or 89, wherein said at least one hydraulic engagement member has a length of less than about 3 inches.

91. (previously presented) The apparatus of claim 90, wherein said at least one hydraulic engagement member has a length of less than about 2 inches.

92. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about 1500 cm³/m²;

a backing roll, wherein said nascent web is located between said foraminous endless fabric and said backing roll; and

Serial No. 09/887,248
Atty. Doc. No. 2734.442-02

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said ~~transfer cylinder~~ backing roll thereby forming a nip between said foraminous endless fabric and said ~~transfer cylinder~~ backing roll, wherein no pervious member is interposed between said ~~transfer cylinder~~ backing roll and said foraminous endless fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m² at an overall line load of less than about 240 kN/m, and wherein said pressing unit comprises at least one hydraulic engagement member.

93. (presently amended) An apparatus for forming an absorbent paper sheet product comprising:

a moving foraminous endless fabric;

means for depositing a nascent web for said absorbent paper sheet on said foraminous endless fabric;

a moving endless pressing blanket for pressing said absorbent paper sheet on said foraminous endless fabric, said moving endless pressing blanket having a void volume of less than about 1500 cm³/m²;

a backing roll, wherein said nascent web is located between said foraminous endless fabric and said backing roll; and

a pressing unit engaging said pressing blanket adapted to urge said nascent web for said absorbent paper sheet on said foraminous endless fabric into engagement with said ~~transfer cylinder~~ backing roll thereby forming a nip between said foraminous endless fabric and said ~~transfer cylinder~~ backing roll, wherein no pervious member is interposed between said ~~transfer cylinder~~ backing roll and said foraminous endless

Serial No. 09/987,248
Atty. Doc. No. 2734.442-02

fabric, said pressing unit being configured to create a peak engagement pressure of at least about 2000 kN/m², and wherein said pressing unit comprises at least one hydraulic engagement member.

94. (previously presented) The apparatus of claims 92 or 93, wherein said pressing unit is additionally configured to impose an asymmetrical pressure distribution upon said nascent web, said asymmetrical pressure distribution being skewed such that the pressure declines from a peak pressure to a value of 20% of said peak pressure over a nip length which is no more than about half of the nip length over which it rose to said peak pressure from 20% of said peak pressure.

95. (previously presented) The apparatus of claims 92 or 93, wherein said at least one hydraulic engagement member has a length of less than about 3 inches.

96. (previously presented) The apparatus of claim 95, wherein said at least one hydraulic engagement member has a length of less than about 2 inches.

Claims 97 - 102 (cancelled).